

Date: Fri, 19 Aug 94 04:30:17 PDT
From: Ham-Ant Mailing List and Newsgroup <ham-ant@ucsd.edu>
Errors-To: Ham-Ant-Errors@UCSD.Edu
Reply-To: Ham-Ant@UCSD.Edu
Precedence: Bulk
Subject: Ham-Ant Digest V94 #270
To: Ham-Ant

Ham-Ant Digest Fri, 19 Aug 94 Volume 94 : Issue 270

Today's Topics:

5/8 wave 2M for 70 cm?
Does 73 Magazine have high SWR?
Kite bourne HF antenna?
REC. for compact 10m beam ant.??
RINGO RANGER II HELP Needed
Screw on BNC

Should feedline lenght change the VSWR? (2 msgs)

Should feedline length change the VSWR?

Which broadband antenna for a base station?

Workshop On Microwave Technology - Cincinnati, Ohio - September 29-30

Send Replies or notes for publication to: <Ham-Ant@UCSD.Edu>

Send subscription requests to: <Ham-Ant-REQUEST@UCSD.Edu>

Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Ham-Ant Digest are available
(by FTP only) from UCSD.Edu in directory "mailarchives/ham-ant".

We trust that readers are intelligent enough to realize that all text
herein consists of personal comments and does not represent the official
policies or positions of any party. Your mileage may vary. So there.

Date: 18 Aug 1994 20:35:14 GMT
From: ihnp4.ucsd.edu!dog.ee.lbl.gov!agate!howland.reston.ans.net!
sol.ctr.columbia.edu!news.oberlin.edu!ocvaxa.cc.oberlin.edu!PRUTH@network.ucsd.edu
Subject: 5/8 wave 2M for 70 cm?
To: ham-ant@ucsd.edu

I am going to soon be getting my tech ticket
followed soon after by a twin band HT, 2M/70cm.
I already have a Radio Shack discone on the
roof to which I added a 47" whip to improve
its low VHF reception on my scanner. The
added element, I think, is a 5/8 wave 2M
whip. I expect it'll work very well on 2M

transmitting, but I wonder if such an element will be a problem when transmitting on 70 cm--can I expect a serious mismatch, high SWR, a deep-fried HT, or will it maybe actually work well? The Diamond discone has a base-loaded element on top which gives it true 25-1300 reception, and it purports to be okay to transmit through, up to 200 Watts on 2M, 220MHz, 70 cm, and 902 also. How can this be? Thanks for your expert advice.
--Bill Ruth, Oberlin, Ohio pruth@ocvaxa.cc.oberlin.edu

Date: 18 Aug 1994 14:33:08 -0400
From: ihnp4.ucsd.edu!news.cerf.net!gopher.sdsc.edu!nic-nac.CSU.net!
charnel.ecst.csuchico.edu!yeshua.marcam.com!zip.eecs.umich.edu!
newsxfer.itd.umich.edu!ncar!csn!jabba.cybernetics.net!@network.
Subject: Does 73 Magazine have high SWR?
To: ham-ant@ucsd.edu

In article <32u8vi\$2gl@tekadm1.cse.tek.com>,
Roy W Lewallen <royle@tekgp4.cse.tek.com> wrote:

>
>
>I do have to add a loud cautionary note, though. Particularly in amateur
>publications, a lot of the "authoritative" information is misapplied or
>just plain wrong. The only protection I know of against getting really bad
>information from this source is to get familiar with the authors and their
>track records. Some magazines do a better job of reviewing articles than
>others, but bad papers still slip through all too often.
>....
>73,
>Roy Lewallen, W7EL

No sooner said and my issue of 73 Magazine arrives with this following
eyesore jumping out of the pages at me....excerpted without permission.

Technical errors and bad advice abound: post your critique!

-----Cut Here-----

[This following excerpt is copyrighted by Wayne Green Inc.]

Low-Cost Transmission Lines: What you don't know can cost you
by Frank Kamp K5DKZ
73 Amateur Radio Today: 408 Sept. 1994

"....

"THE PROCEDURE

"The key here is to ensure that the nondescript line is equal to a multiple of _electrical_ half waves in length. The down side is that this trick will only work on exact multiples of a fundamental frequency. A line cut for 3.5 MHz will also work on 7.0 MHz, 14.0 MHz, and 28.0 MHz. A line cut for 3.9 MHz will work best on 7.8 MHz, 15.6 MHz, and 31.2 MHz. As you can see, multiband operation using this concept is somewhat limited unless you use an antenna tuner. The other problem is determining what physical length of cable corresponds to an electrical half wave at your chosen frequency.

"The electrical half-wave length of any transmission line will _always_ be physically shorter than the length calculated from the formula: half-wavelength in feet = $486/\text{frequency, in MHz}$. The ratio between its shorter physical length and the length from the formula is known as the velocity factor of the line. Velocity factors for various popular transmission lines can be found in _The ARRL Handbook_. You won't find lamp cord listed there.

"You can calculate the velocity factor of any line with nothing more than your station equipment using the following procedure (use a frequency in the 10 meter band to avoid wasting any more of your valuable lamp cord than necessary). From the formula above, calculate the half wavelength in feet for the frequency you are using. Cut a section of lamp cord to this length. Connect the output of your transmitter to a dummy load using a short piece of coax in series with your SWR meter. Tune up on frequency using as little power as possible. Note and record the SWR into the dummy load--it should be very close to 1 to 1. If it isn't, check your hookup and verify that your dummy load is indeed 50 to 75 ohms. Now replace the short length of coax with your lamp cord transmission line (Figure 1). [NOTE: no figure accompanies the article.] Do not readjust your transmitter except for drive to the final, if needed. Apply power and take an SWR reading--it will probably be higher than 1 to 1. Trim a few inches off the lamp cord section and try again. Continue this until you get the lowest possible SWR--it should be close to what you experienced with the dummy load connected through the coax. Measure the final length of the lamp cord and divide it by its original length. The result will be less than one and will represent the velocity factor of your line cord. Now you can use that value to calculate the physical length of lamp cord required to give an electrical

half wavelength on any frequency."

"QUALIFICATIONS

"You might be tempted to do this at 2 meters if you have the equipment. That would waste even less cable, but it may also give you bogus information that will not scale down to HF frequencies. The formula we used is only good for frequencies up to 30 Mhz...."

-----Cut Here-----

Date: Thu, 18 Aug 1994 20:55:34 GMT
From: ihnp4.ucsd.edu!dog.ee.lbl.gov!overload.lbl.gov!agate!howland.reston.ans.net!
europa.eng.gtefsd.com!uhog.mit.edu!news.kei.com!ub!freenet.buffalo.edu!
aa450@network.ucsd.edu
Subject: Kite bourne HF antenna?
To: ham-ant@ucsd.edu

In a previous article, nigel@hardwick.demon.co.uk (Nigel Barker) says:

>Hi
>Regards kites, I guess what you are really looking for is :-
>1) Fly itself
>2) Lift significant weight
>I would suggest getting a cheap delta, made from ripstop nylon
>(about 10 UKP tops), and experiement.

Nigel, I must disagree. Deltas tend to be active and soar more than one would desire in this application. A box Delta, or Delta Coyne is a design intended to overcome that problem. Any box type kite or perhaps the Square "D" invented in New Zeland and manufactured in Holland would be an excellent choice.

I agree fully with your comment below... get a good book.

>Get the kite up, and FIRMLY attach the line to something fixed
>(one of those oversized corkscrews used to tether dogs to?)
>Hold your GLOVED hand over the line, and walk downwind, bringing
>the kite down lower and lower.
>Attach one end of your hf wire, and see how much the kite will
>take up into the air.
>If you find you need a larger delta to get the sort of lift you
>need, then I would suggest reading a library book on the subject
>(there are plenty with good instructions) and make one, as a delta
>is not tricky, it just needs to be built in the right proportions.
>If you want any more details on kites, or wish to swap info,

>drop me an email (we don't have the steady winds here, even though
>we are on an island).
>A last thought...
>Remember the experiement with a kite flown on wire, a key and
>rather a lot of volts? Better watch those clouds!
>Cheers
>--
>Nigel Barker
>nigel@hardwick.demon.co.uk
>(Cambridge, England)
>
--

Date: 16 Aug 1994 22:24:50 GMT
From: ihnp4.ucsd.edu!pacbell.com!sgiblab!uhog.mit.edu!news.kei.com!ssd.intel.com!
chnews!scorpion.ch.intel.com!cmoore@network.ucsd.edu
Subject: REC. for compact 10m beam ant.??
To: ham-ant@ucsd.edu

In article <32otmd\$ptd@hpcchase.rose.hp.com>,
Paul Jacobson <pvj@hprnd.rose.hp.com> wrote:
> I've got very limited space above and around my house as it is not
> that big. I'd like to run a beam on 10m but need something somewhat
> compact. Do any of you have any recommendations on a quality beam of
> this nature??
> Paul Jacobson KC6JQT

Hi Paul, I'm working on a compact 17m quad. It is like the Maltese Quad
described in a recent ham publication but the folded-into-the-center legs
are routed perpendicular toward the other mirror element of a two-element
quad. These legs are actually inductive stubs made out of 450 ohm ladder-
line and become part of the support system.

You can also build a compact quad by putting inductors at each corner.

73, Cecil, KG7BK, 00TC (Not speaking for Intel)

--
Intel, Corp.
5000 W. Chandler Blvd.
Chandler, AZ 85226

Date: 18 Aug 1994 20:30:30 GMT
From: ihnp4.ucsd.edu!dog.ee.lbl.gov!agate!howland.reston.ans.net!math.ohio-
state.edu!sdd.hp.com!col.hp.com!jwc@network.ucsd.edu

Subject: RINGO RANGER II HELP Needed
To: ham-ant@ucsd.edu

David Gordon (dgordon@sadira.gb.nrao.edu) wrote:
: I have a Ringo Ranger II for 2m, I misplaced the
: short coax section that connects the antenna to
: the ground ring radials. What is the proper length
: of this piece of coax??? 1/4 wave, 1/2 wave section???
: Send reply to:

: dgordon@nrao.edu

: Thanks, David - KB4LCI

approx. 55 inches. The whole thing can be contained on a 5 ft mast section.

John, NØKIC

Date: 18 Aug 94 17:40:02 -0500
From: ihnp4.ucsd.edu!dog.ee.lbl.gov!agate!howland.reston.ans.net!
europa.eng.gtefsd.com!ulowell!aspen.uml.edu!martinja@network.ucsd.edu
Subject: Screw on BNC
To: ham-ant@ucsd.edu

In article <32rk65\$8he@tekadm1.cse.tek.com>, royle@tek4.cse.tek.com wrote:

> ... By and by, he handed me the cable with connector again, and I did the
> test again. Off it popped. He looked at me strangely, shrugged, and walked
> off. Never saw him again.

Luv it Roy!!! Hahahahaha hahaha. Wonder if this is the Korean I saw walking
north on Hwy 1 toward Seoul right outside of Suwon? As he was walking he
kept staring at a piece of cable he held in his left hand. The whole time
he was scratching his head with his right.

73 de WK1V
-jim-

Date: 18 Aug 94 20:16:19 GMT
From: ihnp4.ucsd.edu!dog.ee.lbl.gov!agate!howland.reston.ans.net!
vixen.cso.uiuc.edu!aries!hawley@network.ucsd.edu
Subject: Should feedline length change the VSWR?
To: ham-ant@ucsd.edu

micron3@aol.com (Micron3) writes:

> I think it sounds like I should either choke off the
>current flowing on the outside of the line or cut the
>feedline to 65 feet and fool the SWR meter and rig into
>thinking that the SWR is correct (which it may well be
>if I could measure it with a broadcast quality meter.)
>or fork out the green stuff for a high quality piece of test
>equipment. I'll probably try the choke first if I can find the
>stuff here in the wilds of Idaho since I don't have
>to chop up the cable to do it and don't have the money
>for the test equipment method.

Roll the first 35 feet of the coax (nearest the antenna) into abt
an 8 inch diameter close wound coil. Try not to get the ends next
to each other. Then see what you get. Air wound choke...no cutting.
No expense. You can do it in Idaho.

Chuck Hawley, KE9UW in Urbana, Illinois
hawley@aries.scs.uiuc.edu
School of Chemical Sciences, Electronic Services
University of Illinois, Urbana-Champaign

Date: 18 Aug 1994 19:44:04 -0400
From: newstf01.cr1.aol.com!search01.news.aol.com!not-for-mail@uunet.uu.net
Subject: Should feedline lenght change the VSWR?
To: ham-ant@ucsd.edu

In article <1994Aug18.154917.28908@ke4zv.atl.ga.us>, gary@ke4zv.atl.ga.us
(Gary Coffman) writes:

>A final thought. The antenna manufacturer may be *counting* on the
>coax radiating to make the antenna work, IE it's really the coax
>that makes up the bulk of the antenna on 80 meters. In that case,
>first you've been *had*, and second you're going to have to follow
>their advice to get it to work.

Gary,

That thought occured to me also after I sent the last message.
The antenna already has three 25 "Counterpoise" radials that
I understand affect the 40 M Band. They very well could be
counting on the feedline acting as part of the antenna in order
for it to work, especially on 80 M. If that is the case I suppose
I can either follow the directions and cut the feedline to 65 feet
or perhaps add some 65 foot counterpoise radials and see what

that does to things I don't mind following directions, I just wanted to know the "Why" of it.

Terry KJ7F

Date: 18 Aug 1994 23:01:10 GMT
From: news.tek.com!tekgp4.cse.tek.com!royle@uunet.uu.net
Subject: Should feedline length change the VSWR?
To: ham-ant@ucsd.edu

gary@ke4zv.atl.ga.us (Gary Coffman):

:. . .

:You have the stuff needed for a choke. Just wind several turns
:of the coax in a tight loop (6 inch dia) near the antenna. This
:will choke off RF currents on the shield. It's not as effective
:at HF as a ferrite loaded coil, but it should make a noticeable
:difference. If it **does** make a difference in your readings, but
:not enough to totally solve the problem, you have two choices.
:First you can **resonate** the coil, thus making it a parallel
:trap, with a capacitor soldered to the shield across the coil.
:That'll only work for a fairly narrow frequency range.

:. . .

If you wind the coax into a flat coil like a coil of rope, you'll get a parallel resonant circuit with from several hundred to a couple of k ohms of impedance to currents trying to flow on the outside. It's low Q, so the impedance stays usefully high over a 2 or 3:1 frequency range. No capacitor is required. Typical lengths of coax and diameters of coils can be found in the last several editions of the ARRL Handbook).

73,
Roy Lewallen, W7EL
roy.lewallen@tek.com

Date: 18 Aug 94 04:03:05 GMT
From: ihnp4.ucsd.edu!agate!howland.reston.ans.net!cs.utexas.edu!news.unt.edu!jove!
tad@network.ucsd.edu
Subject: Which broadband antenna for a base station?
To: ham-ant@ucsd.edu

Shortly I will be buying a Bearcat 8500 XLT (any comments on that?), and

wish to get an outdoor antenna to use with it. I will be placing my antenna on top of a metal building, about 25' in the air. I think that I have gotten my selection down to two antennas from Tucker Electronics in Dallas: either the Sigma SE 1300 discone or the Sigma SM 1500 "Scan King". Neither the larger bandwidth of the SM 1500 (.5 MHz to 1500 MHz vs. 25 MHz to 1300 MHz) nor the ability of the SE 1300 to broadcast are important to me. Both of these antennas cost the same. How do I chose one over the other? I will be listening over the entire range of the scanner, though My favorite area are the 161 MHz railroad frequencies.

Some antenna questions that I also have... Does gain refer to rx or tx or both? How well does an antenna *receive* off band? ie. is a good 2m antenna nearly as good for receivng 161 MHz as is one specifically tuned? Do I want an antenna amplifier? If so, any recommendations?

Thanks,
Tad

--
--

Tad Marko Internet: tad@jove.acs.unt.edu

If you really want to help me, give me Liberty.

Date: 17 Aug 1994 08:59:59 -0400
From: ihnp4.ucsd.edu!ucsnews!newshub.sdsu.edu!nic-nac.CSU.net!usc!
howland.reston.ans.net!usenet.ins.cwru.edu!lerc.nasa.gov!lerc.nasa.gov!
lerc.nasa.gov!not-for-mail@network.ucsd.edu
Subject: Workshop On Microwave Technology - Cincinnati, Ohio - September 29-30
To: ham-ant@ucsd.edu

Workshop on
Microwave Technology 2000 and Beyond

Aim: To provide an in depth overview of some of the major commercial application areas in Microwave Technology, to learn the state of art capabilities of defense technology and to simulate new commercial application areas that can use this technology. It will also provide a forum for presenting our present work in related areas.

When: September 29-30 , 1994.

Place: University of Cincinnati, 402 Tangeman Center, Cincinnati, Ohio

Organized by: Ohio Aerospace Institute, Microwave Technology Technet.

Participating Organizations: IEEE Cincinnati, Dayton and Cleveland Sections, University of Cincinnati.

Invited Lectures: Experts are invited to give presentations on some of the important emerging application areas related to microwave technology.

Program:

September 29, 1994, Thursday

9:00-11:00 Invited Talks

- Microwave and Millimeter Wave Development at NASA LeRC (G.E. Ponchak)
- Cellular Communication Systems (P.Odlynsko, Motorola)
- Microwave and Millimetric Wave Photonic Technology (B Hendricksen, ARPA, Rome Lab.)

12:00-1:00 p.m. Lunch

1:00-3:00 Invited Talks

- Microwave Integrated Circuit Technology (M. Calcaterra, WPAFB)
- Industrial Applications of Microwaves (A.M.Ferendeci, UC)

3:00-5:00 p.m. Contributed Papers

September 30, 1994, Friday

9:00-12:00 Invited Talks

- Microwave Applications in Medicine (L.Taylor, Univ. MD)
- Technology Transfer To and From Radar (M. Skolnik, NRL)
- Intelligent Vehicle Highway Systems (R.Dixit, TRW)

12:00-1:00 p.m. Lunch

2:00-3:30 Panel Discussion

Microwave Technology: Defense to Industry Transition.

Moderator: D.Connolly, NASA LeRC.

Contributed Paper Presentation:

Short papers (not to exceed 10 min) will be accepted for presentation during the workshop to provide the ongoing research and development activity related to the commercial and industrial applications of Microwave Technology. Papers especially related to microwave sensors, medical applications, industrial applications, IVHS, photonics at millimeter wavelengths, material characterization, measurement technology and high power commercial applications are encouraged. Proceedings of the workshop will be available for distribution during the workshop. Please send an abstract not to exceed 250 words to Altan M. Ferendeci, ECE Dept. University of Cincinnati, Cincinnati, Ohio 45221-0030. Fax: (513) 556-7326. Deadline for receipt of abstracts is Sept. 12, 1994.

Hotel Reservations: Rooms are reserved for the workshop at Vernon Manor Hotel, 400 Oak St. near the University.

Please call 1-800-543-3999 or 1-513-281-3300 and mention

RG-58 either open or shorted at one end will measure an SWR of less than 1.1/1 at the other end. 1.1/1 on one end... almost infinite on the other...

The G5RV that I once had certainly had a different SWR at the transmitter end of the coax than it had at the coax/twin-lead junction, especially on 10m.

73, Cecil, KG7BK, 00TC (Not speaking for Intel)

--

Intel, Corp.
5000 W. Chandler Blvd.
Chandler, AZ 85226

Date: 17 Aug 1994 16:00:04 GMT
From: ihnp4.ucsd.edu!ucsnews!sol.ctr.columbia.edu!howland.reston.ans.net!
noc.near.net!hopscotch.ksr.com!jfw@network.ucsd.edu
To: ham-ant@ucsd.edu

References <32h1af\$8nm@search01.news.aol.com>, <32m4rk\$plb@jabba.cybernetics.net>,
<32qeio\$3ds@jabba.cybernetics.net>ch.ksr
Subject : Re: Should feedline lenght change the VSWR?

ab4el@jabba.cybernetics.net (Stephen Modena) writes:
>The original poster is having problems...not the least of which is
>"who to believe." He's getting advice that goes against his book
>learning, but his book learning is not helping him in the face of
>confusing readings from his Autek. I see this kind of confusion
>all of the time...why does it continue?

It continues because some people mistakenly assume that "book learning" has nothing to do with the real world.

It is only in a fantasy world that SWR changes with line length, and confusion continues because too many who know better indulge those who don't and let them continue to believe that it does.

Yes, SWR readings on real-world meters often change when real-world transmission line length is changed. But that is **never** because the SWR changes, and indulging that fantasy that it does can **only** get in the way of solving the problem; sometimes it fails to get in the way enough to prevent the problem from being either solved or covered up, and that lets the poor victim believe that, sure enough, you can change the SWR by changing the transmission line length, leading to frustration and wasted time in the future.

If, instead, you tell them that the bogus readings are caused by what they're really caused by in the real world (busted meters, broken connectors, RF on the shield, etc.) you point them in the right direction not only to solve their current problem, but any future problems. Granted, it is much harder to communicate this adequately than to just say "yeah, dink around with the coax length until it works", but unless they've bought real estate in Fantasy Land, it will have a lot more to do with their antenna.

There's too much snake oil in the real world already. Don't manufacture more of it.

By the way:

> feedline segments have to be close to 1/2-wavelength.

Why on Earth do you believe that? That means EXACTLY and ONLY that at ONE particular frequency (and even harmonics thereof) the impedance of the load is presented at the near end of the coax; in the real world, the same magnitude of mismatch will be present regardless of the length. (Granted, a fixed-tune rig might be happier with one kind of reactance or another, in which case a PARTICULAR antenna will work better with a half-wavelength line than a quarter-wavelength line, because that PARTICULAR antenna had the right kind of reactive component -- but another antenna will be at the worst possible reactance with a half-wavelength feedline!)

You might as well apply leeches to your antenna, if you're not going to bother understanding how it really works.

End of Ham-Ant Digest V94 #270
